PRE-POSITIONED EXPEDITIONARY ASSISTANCE KITS

PEAK

Building Partner Capacity

JOINT CAPABILITY TECHNOLOGY DEMONSTRATION

PEAK

COMMUNICATIONS MANUAL

7 MAY 2012

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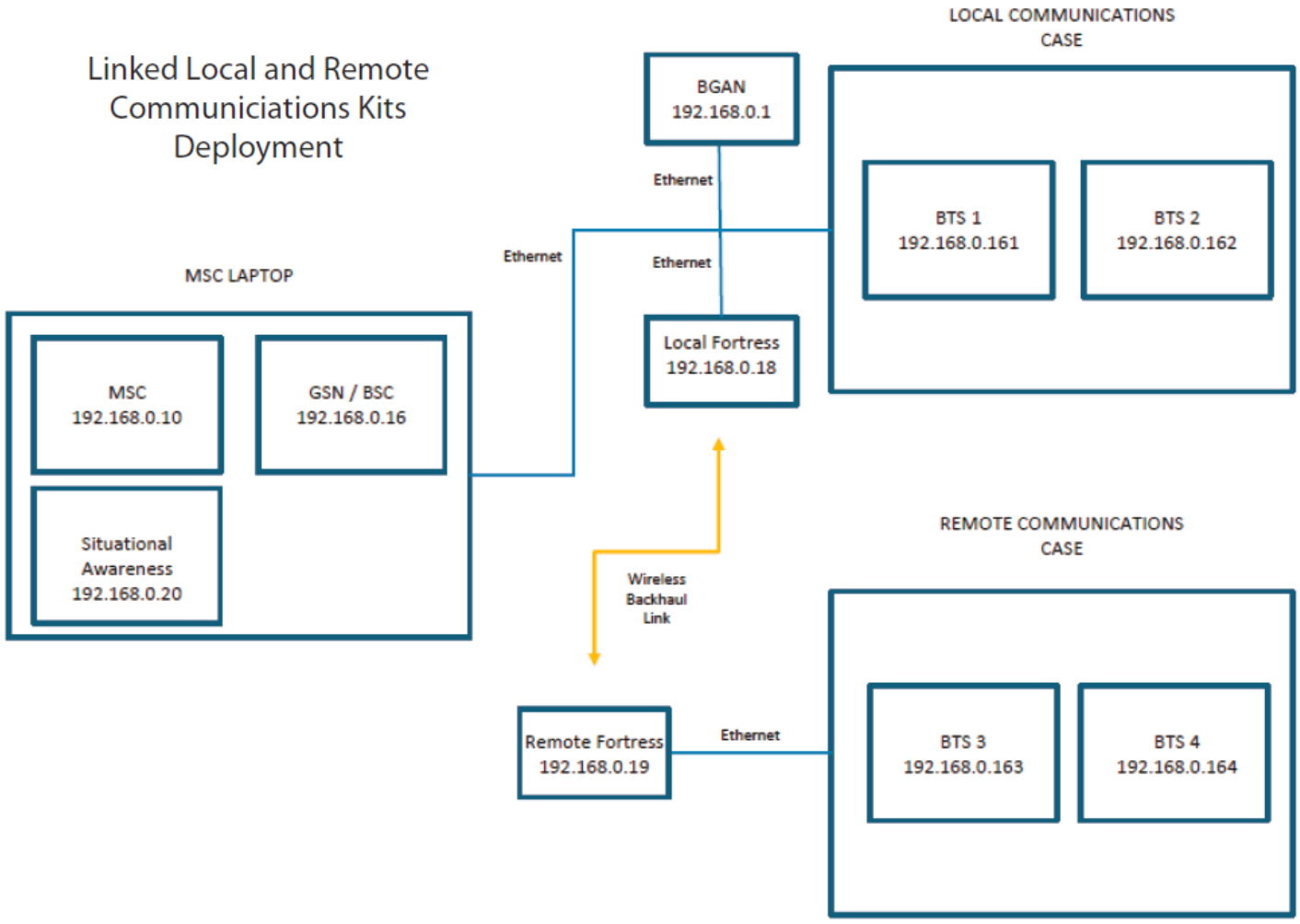
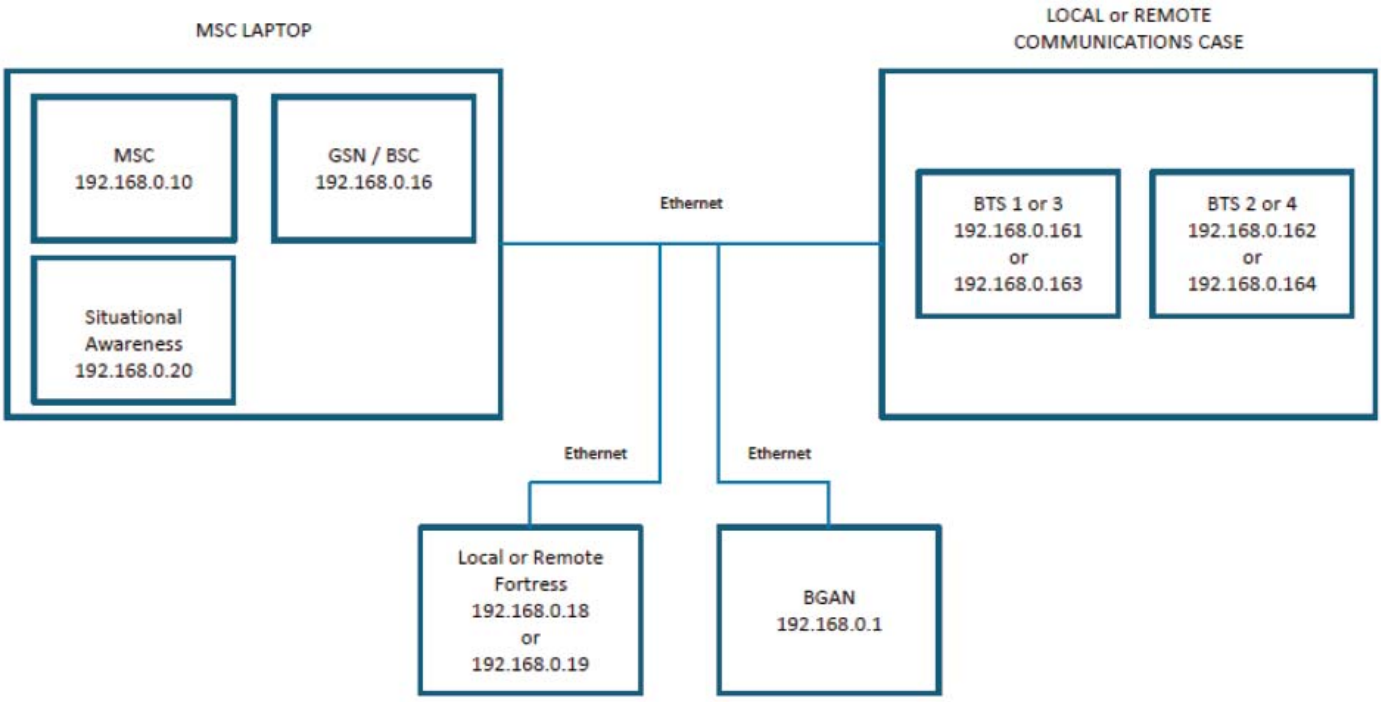
PEAK COMMUNICATIONS

The PEAK communications package utilizes commercially available cell phone and wireless fidelity (WIFI) technology to provide communications support for the PEAK responders in the absence of available networks. The communications package is not intended to connect to the military NIPR and SIPR networks. The communications package is two identical kits that can be linked together as a main site (local) and remote site, or that can be used as independent main sites. The communications equipment is transported in shock absorbing cases to prevent damage during transport. The cases are retrofitted to allow ease of setup by keeping the majority of the equipment within the case. Cases are vented and/or have fans to aid in cooling. Communications cases are not water resistant and should be sheltered from the elements. The communications schematics for linked and independent communication kit deployments are provided below followed by an inventory of the major communications items.



Independent Communications Kit Deployment



Communications Equipment Inventory:

ANTENNA MAST	WEIGHT	CONTENTS	QTY/ KIT	SITE
Blue Sky Mast AL-1-Stand Series-10 Meters	77.5 lb.	Antenna Mast	2	Local / Remote
LMR 600 UltraFlex	12 lb.	RF Cable	2	Local / Remote
Extension Cord	7 lb.	Located in Mast bag	2	Local / Remote
Grounding rod	6.5 lb.	Multi-section rod	2	Local / Remote

ANTENNA	WEIGHT	CONTENTS	QTY/ KIT	SITE
Andrew Omni DB586-Y	6 lb.	N/A	2	Local / Remote

Equipment Case	WEIGHT	CONTENTS	QTY/ KIT	SITE
Pelican 1500 Case	17 lbs. with Equipment	10 Smartphones and chargers	2	Local / Remote
Pelican 1600 Case	33 lbs. with Equipment	1 Dell Latitude ATG E6400, 1 Explorer 500 and cables, 1 Fortress ES520 and cables	2	Local / Remote
4RU ECS Case 8303	98 lbs. with Equipment	2 Nano 900 MHZ BTS, 2 TLC 900 MHZ PA, Power cords and cabling with DC to AC Inverter / 8 port switch	2	Local / Remote

BGAN

Andrew Omni DB586-Y

Fortress ES520 Bridge

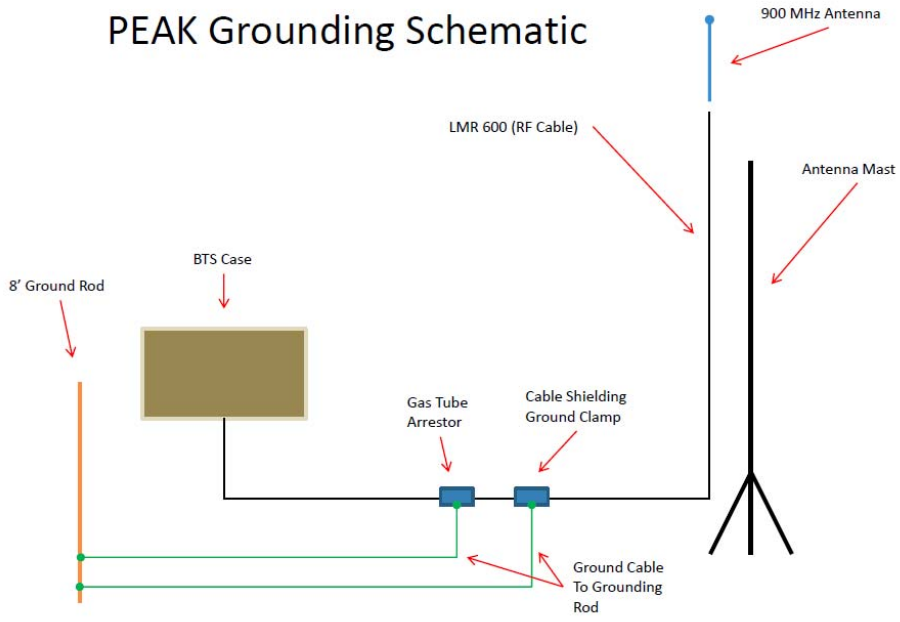
DELL Laptop

4RU ECS Case 8303

LOCAL (LINKED OR INDEPENDENT) SITE SET-UP:

1. Open and unpack antenna mast bag.
2. Locate mounting top pole. (before setting up antenna) - it is half the length of the other mast poles. ***(see antenna setup)***
3. Attach guy wire collar at bottom hole (near castle-cut end) of mounting pole.
4. Attach Omni Antenna to the pole.
5. Unroll RF cable and lay out flat. Be sure cable does not kink. Attach RF cable to the omni-antenna.
6. Attach Fortress below guy wire collar and secure with wingnuts, bracket, and bolts to mounting pole slightly below omni-antenna (offset Fortress and omni-antenna to ensure guy wire clearance).
7. Securely attach Backhaul (Black) antenna and Wi-Fi (White) antenna to Fortress. Black antenna to ANT 1 and White antenna to ANT 2 on Fortress.
8. Attach Cat-5 cable found in Fortress pelican kit to Fortress. Un-roll and lay out flat. Be sure cable does not kink.
9. See picture for Omni Antenna, Fortress, and pole setup.
10. Construct pop-up tent to weatherproof base station.
11. Follow Antenna Mast setup provided later in this user manual.

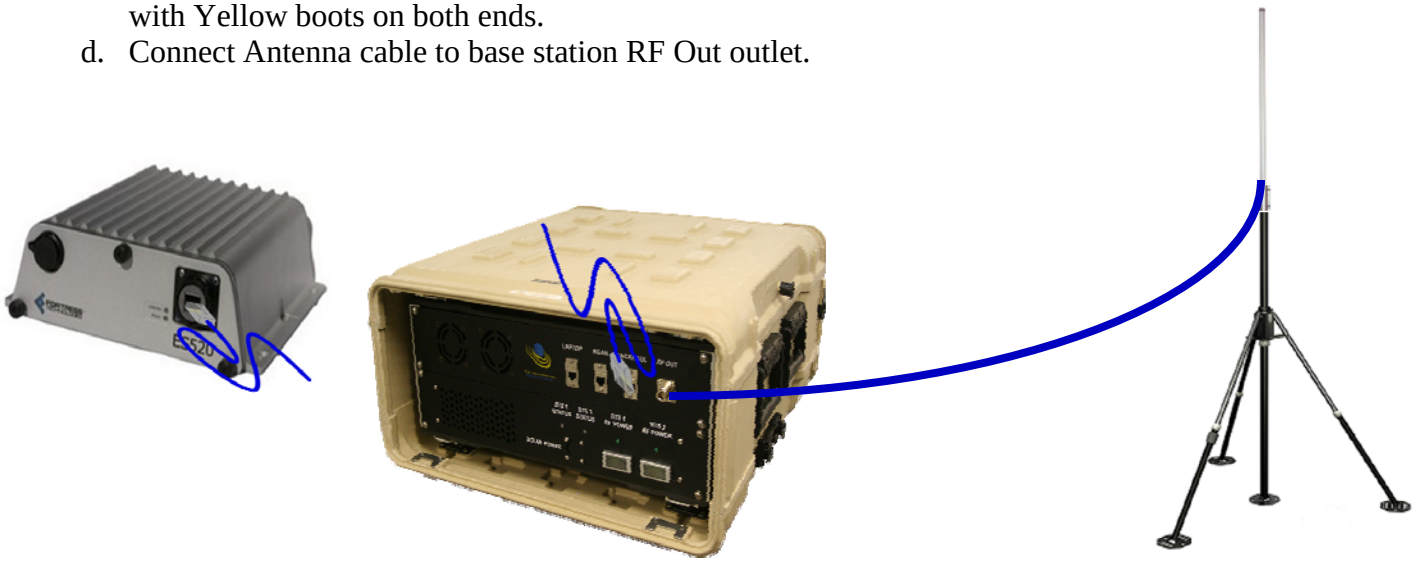
12. Grounding kit set-up
    a. Hammer 8-foot multi-section grounding rod into ground until 1 ½ foot remains exposed.
    b. Attach both grounding cables by loosening each clasp, placing clasp on the exposed section of grounding rod, and tightening the clasps.



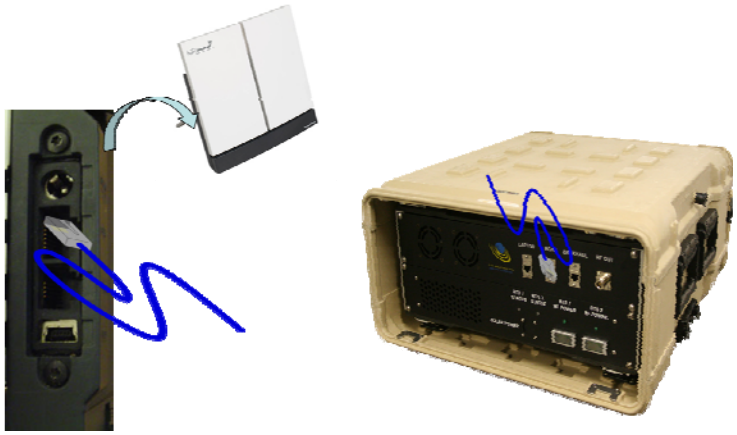
NOTE: The grounding kit is used to ground the antenna's RF cable (LMR 600) that runs from the antenna to the Base Station. The LMR 600 has two conductors in it, the core and the shielding, and therefore requires two grounding cables. One cable grounds the core through a gas tube arrestor, and the other cable grounds the shielding through the cable shielding ground clamp. The BTS case is also grounded by the gas tube arrestor and grounding cable to the grounding rod.

NOTE: Ensure Base Station is placed under a shelter to prevent significant exposure to weather.

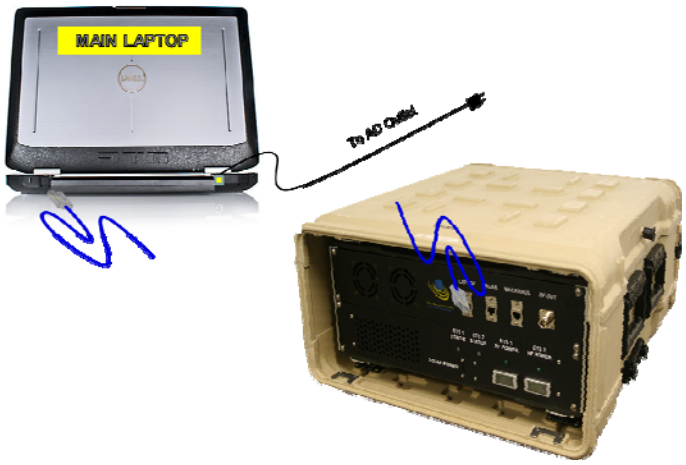
13. Base Station Setup:
    a. Base station should be placed in close proximity to antenna where antenna cable and Fortress Cat-5 cable can reach base station.
    b. Remove front and back covers of base station case.
    c. Connect the WAN port of the Fortress to the Backhaul port on the case top front panel. Use cable with Yellow boots on both ends.
    d. Connect Antenna cable to base station RF Out outlet.



    e. Connect the LAN port on the BGAN to the BGAN port on the base station front panel. Use cable with Green boots on both ends.



    f. Attach Laptop Cat-5 cable to base station outlet as marked, and plug laptop power into power strip on back of base station kit.



g. Plug BGAN power cord into power strip on back of base station kit.
h. Plug base station power cord into power source.
i. Power ON with red switch (found on back of base station in upper right hand corner).

14. BGAN Setup:
    a. Verify BGAN power cord is plugged into power strip on back of base station, and base station is powered ON.
    b. Verify LAN port on BGAN is connected to the BGAN port on the base station front panel.

WARNING: Minimum safety distance from front of antenna while radiating is 0.6 meters.

    c. Mark 0.6 meter minimum safety distance with tape included in PEAK kit.
    d. Press BGAN Power button.
    e. Adjust and position to find satellite. Beeping will begin when satellite is found. Faster beeping corresponds to higher signal strength.
    f. Press "OK" once connectivity is between 45-60 dB Hz.
    g. Screen will read "READY" once connectivity is established.

NOTE: BGAN must be connected to base station and powered on to generate IP addresses for Wi-Fi service through Fortress.

NOTE: Do not connect both laptops or BGANs into system at same time. This will cause problems in your network.

15. Laptop Setup:
    a. Insert dongle (291) into available USB port.
    b. Press Power button.

NOTE: Ensure base station is connected to laptop and powered on before powering on the laptop. This ensures that the switch and Ethernet are active.

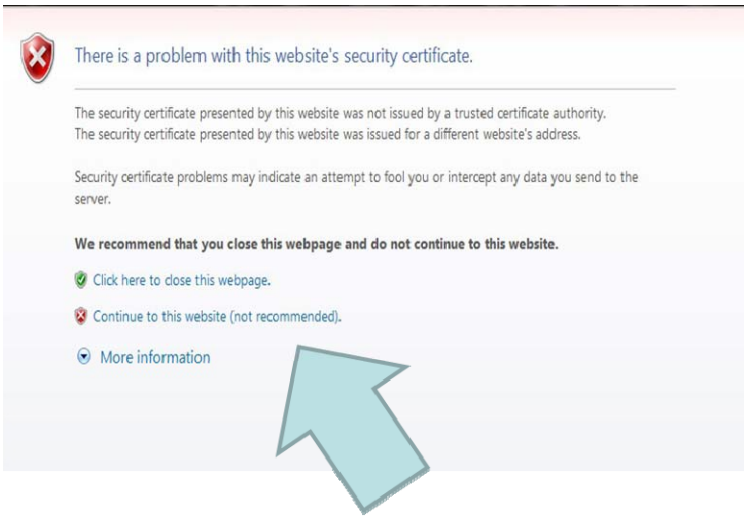
16. Laptop Operation:

A. After boot-up, two processes will be running at the bottom. "SMSC" and "MSC." Wait 20-30 seconds to allow processes to start.

NOTE: If you receive an "invalid license" error and the MSC process is not running after boot-up , ensure that the license dongle is plugged into a USB port and ensure that it is the correct dongle.

B. Click on Local Fortress Icon

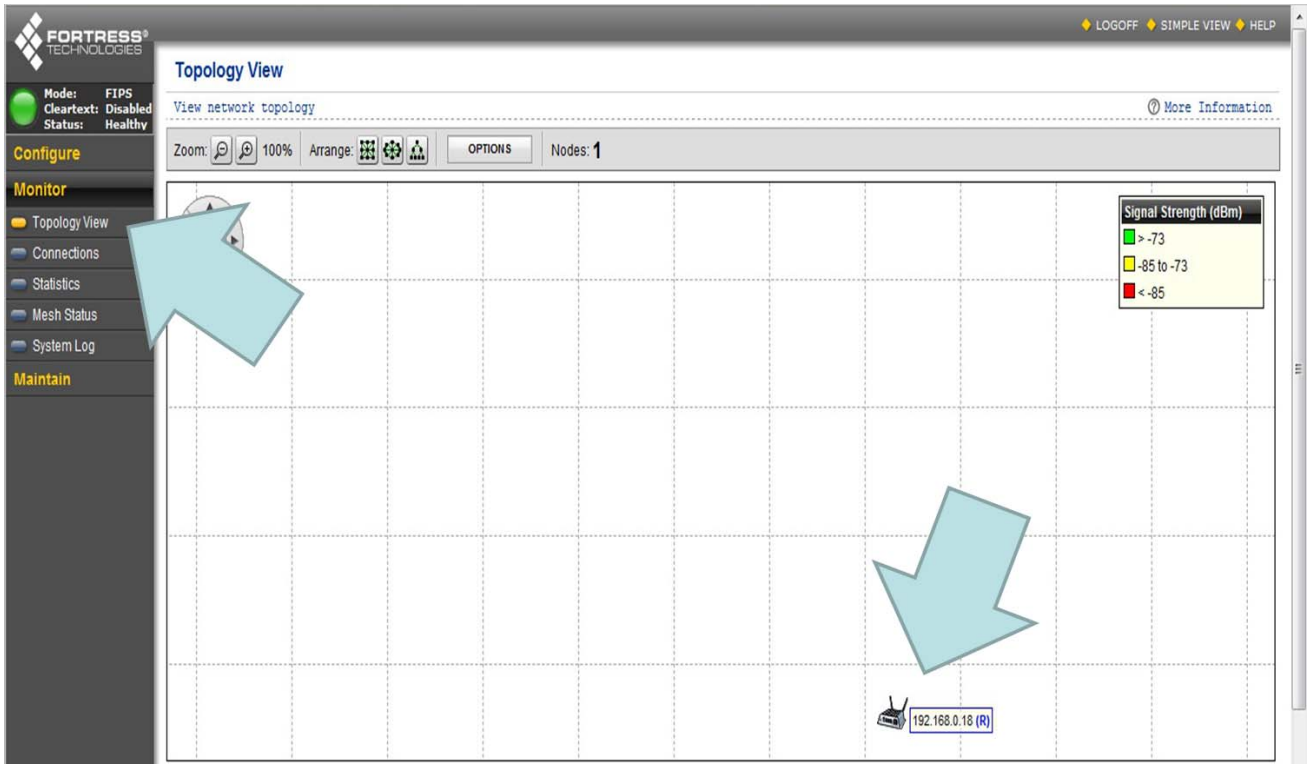
Then click “continue to this website (not recommended).”


There is a problem with this website's security certificate.
The security certificate presented by this website was not issued by a trusted certificate authority.
The security certificate presented by this website was issued for a different website's address.
Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.
We recommend that you close this webpage and do not continue to this website.
Click here to close this webpage.
Continue to this website (not recommended).
More information

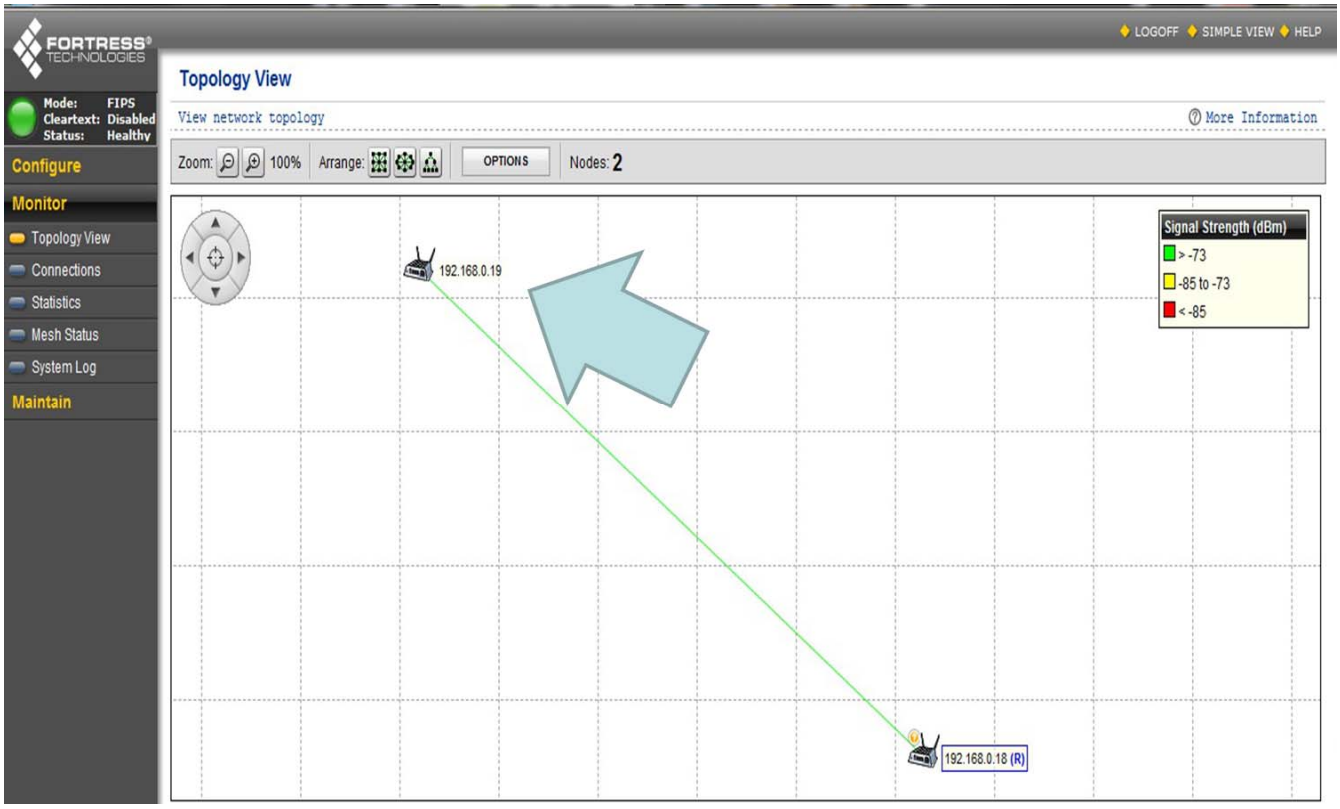
C. Login with Username “admin” and Password “admin1234567890”.

NOTE: Allow Fortress up to 3-5 minutes to fully boot up. Zoom out if needed.

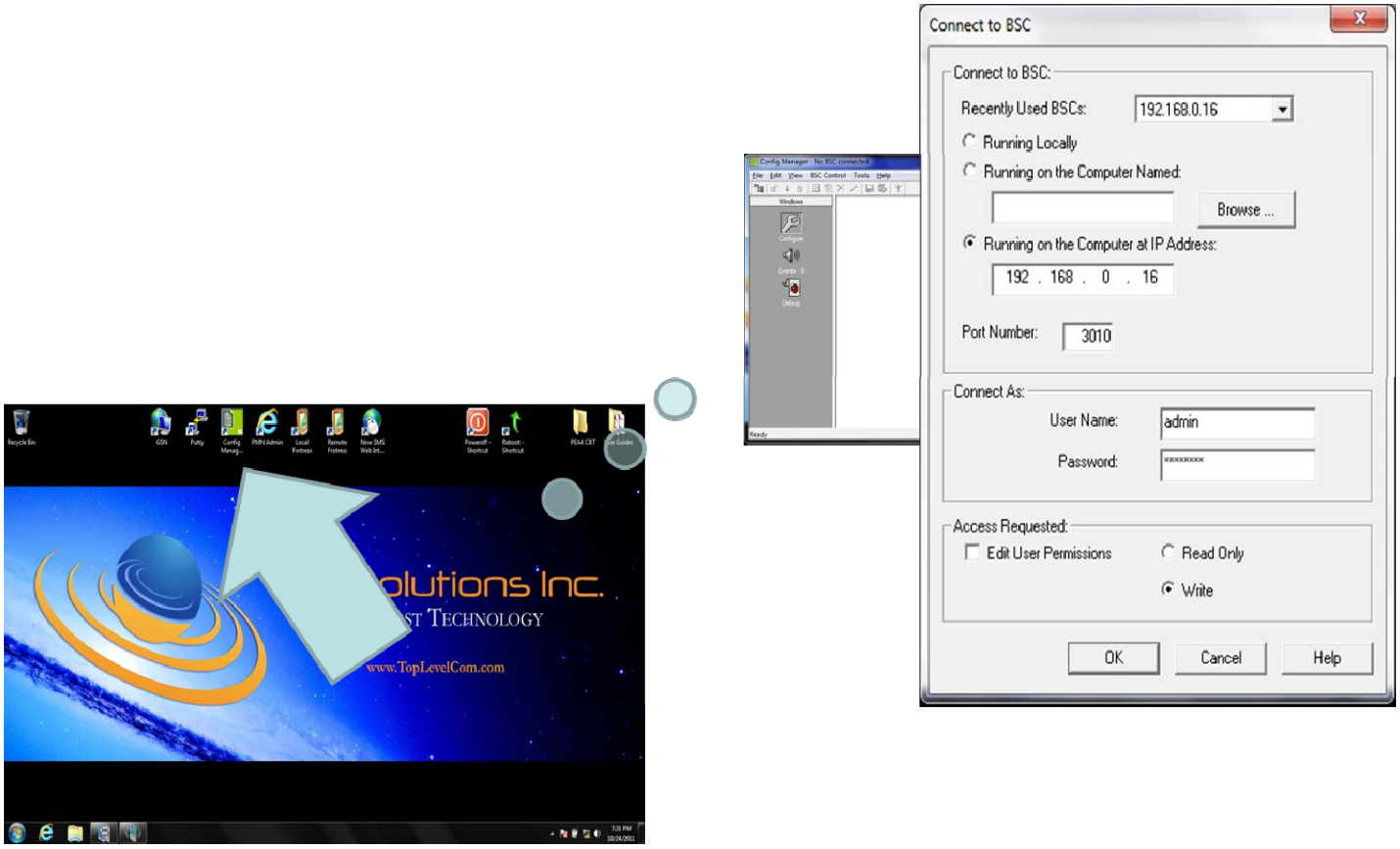
D. Click on Topology View. The site one icon will appear.



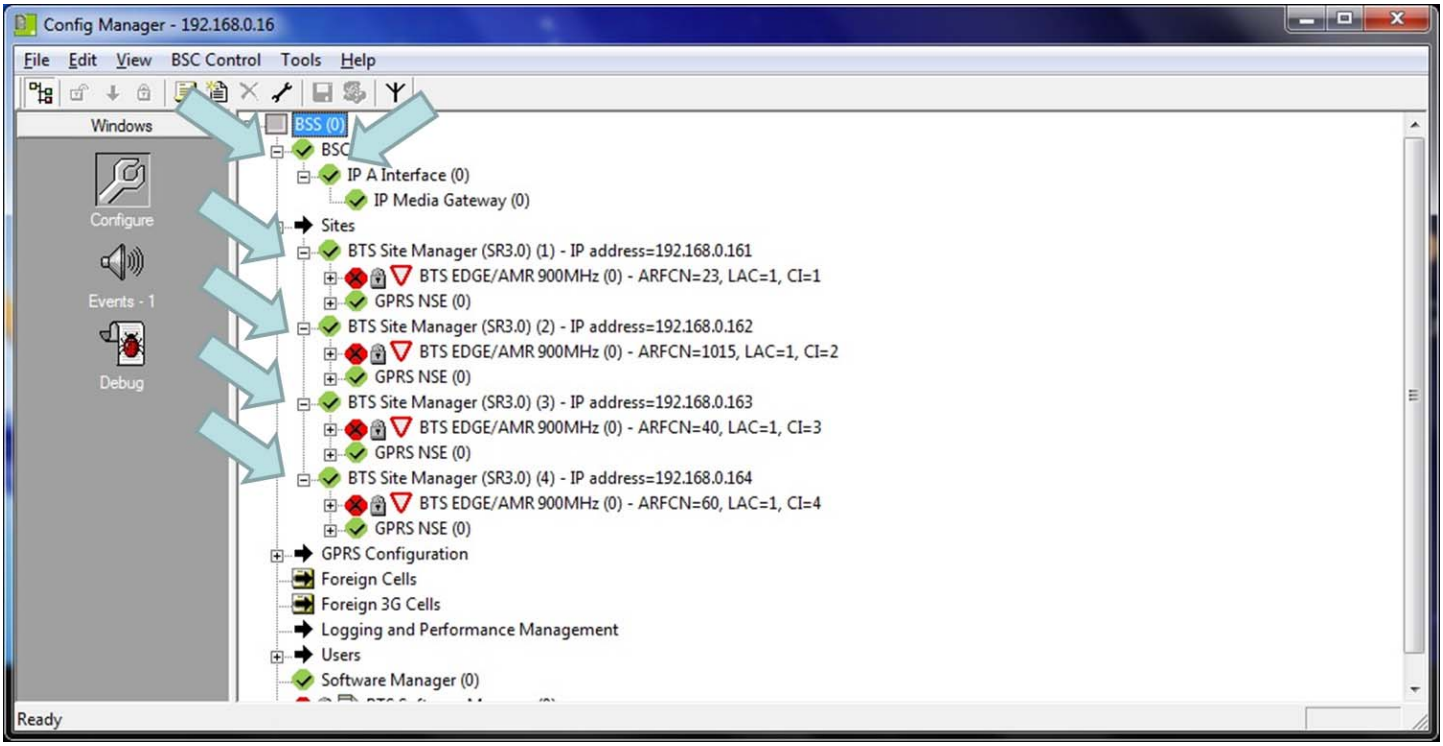
E. If communication sites are set up in a Linked configuration, a second Fortress icon will appear for the Remote site once it is fully installed. Refresh screen if necessary.



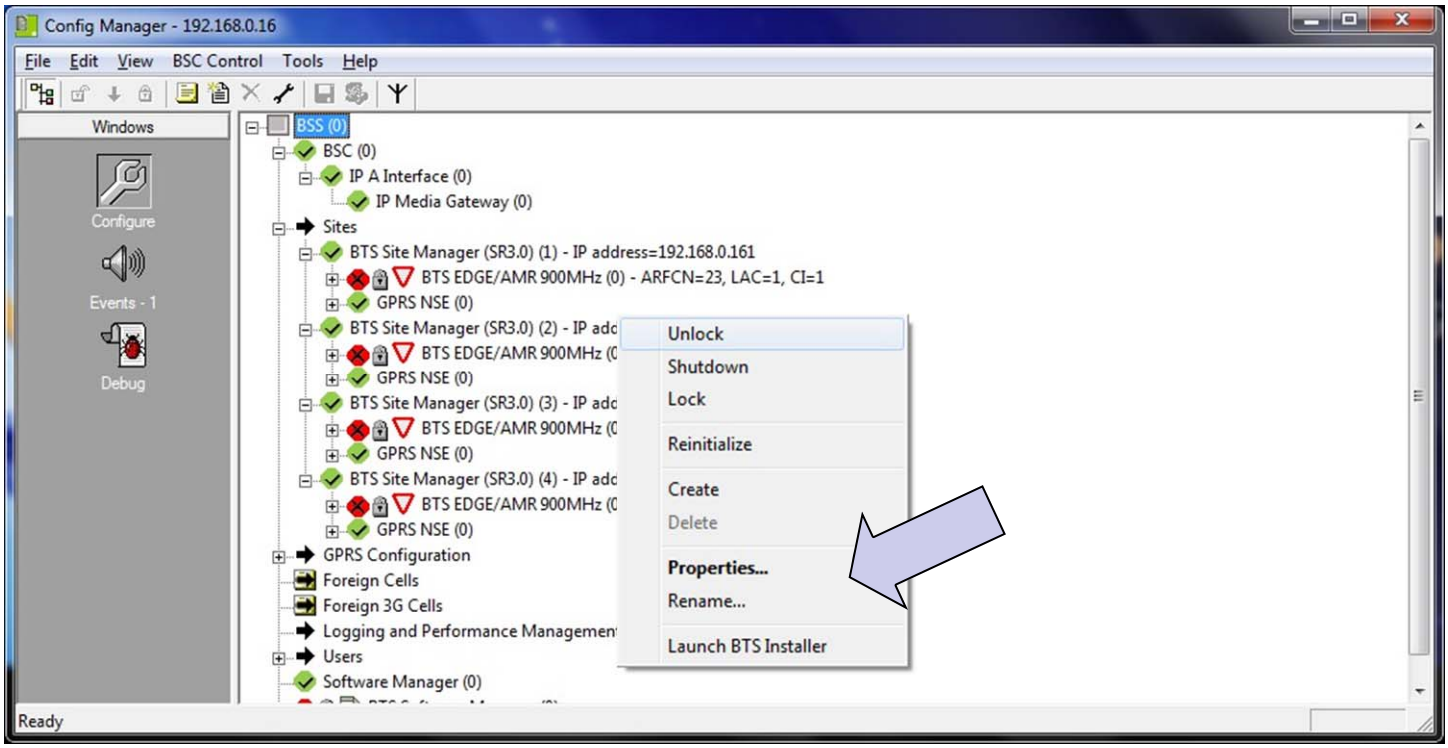
F. Click on Config Manager icon. When prompted, enter Username: “admin” and Password: “password”.



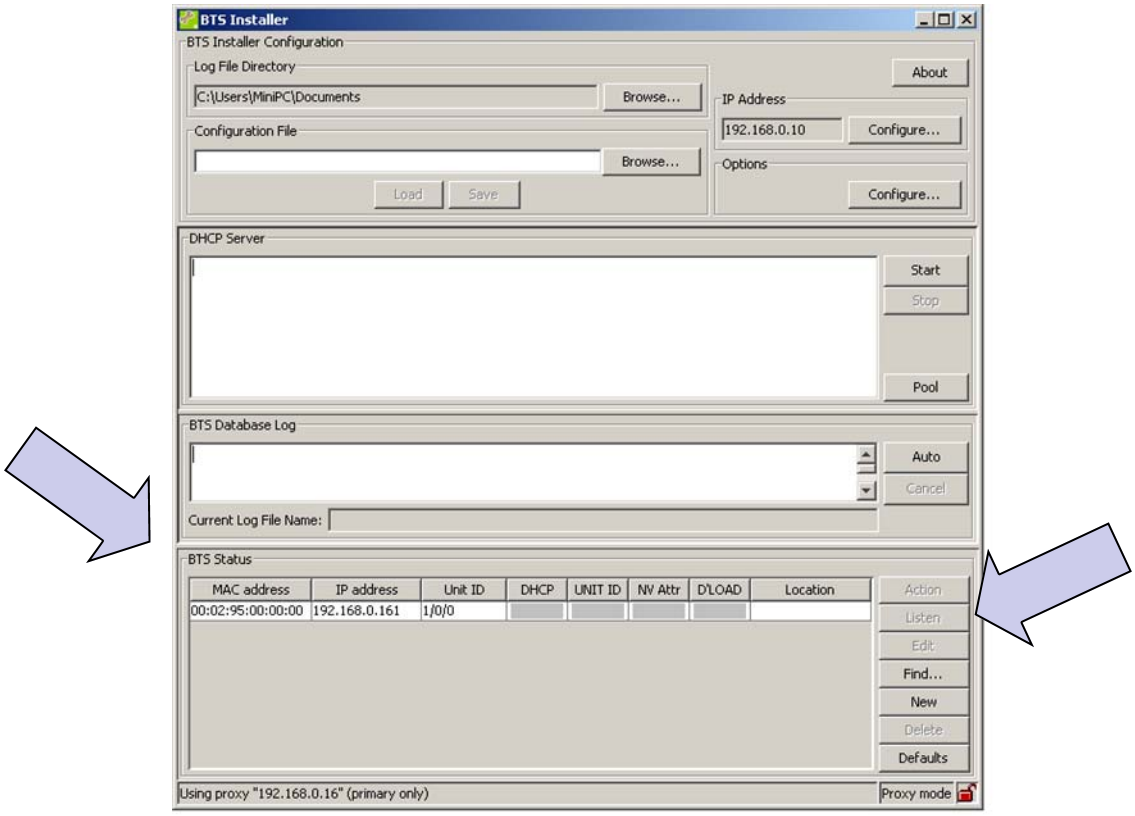
G. Expand all sites and BSC tabs.


Config Manager - 192.168.0.16
File Edit View BSC Control Tools Help
Windows
Configure
Events - 1
Debug
BSS (0)
BSC
IP A Interface (0)
IP Media Gateway (0)
Sites
BTS Site Manager (SR3.0) (1) - IP address=192.168.0.161
BTS EDGE/AMR 900MHz (0) - ARFCN=23, LAC=1, CI=1
GPRS NSE (0)
BTS Site Manager (SR3.0) (2) - IP address=192.168.0.162
BTS EDGE/AMR 900MHz (0) - ARFCN=1015, LAC=1, CI=2
GPRS NSE (0)
BTS Site Manager (SR3.0) (3) - IP address=192.168.0.163
BTS EDGE/AMR 900MHz (0) - ARFCN=40, LAC=1, CI=3
GPRS NSE (0)
BTS Site Manager (SR3.0) (4) - IP address=192.168.0.164
BTS EDGE/AMR 900MHz (0) - ARFCN=60, LAC=1, CI=4
GPRS NSE (0)
GPRS Configuration
Foreign Cells
Foreign 3G Cells
Logging and Performance Management
Users
Software Manager (0)
Ready

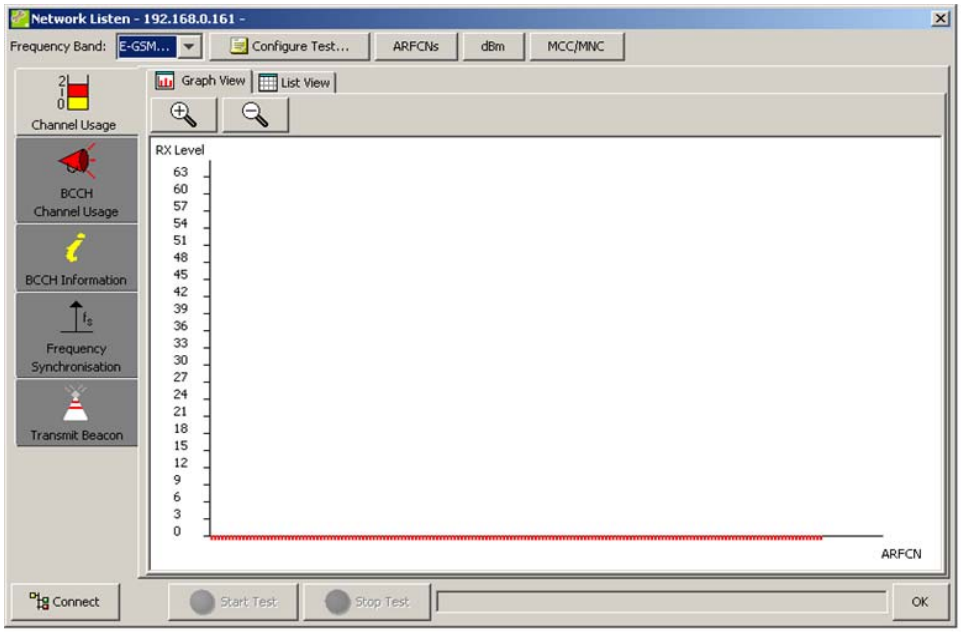
H. Right click on the second level of the first site and select Launch BTS Installer. The BTS Installer will open.



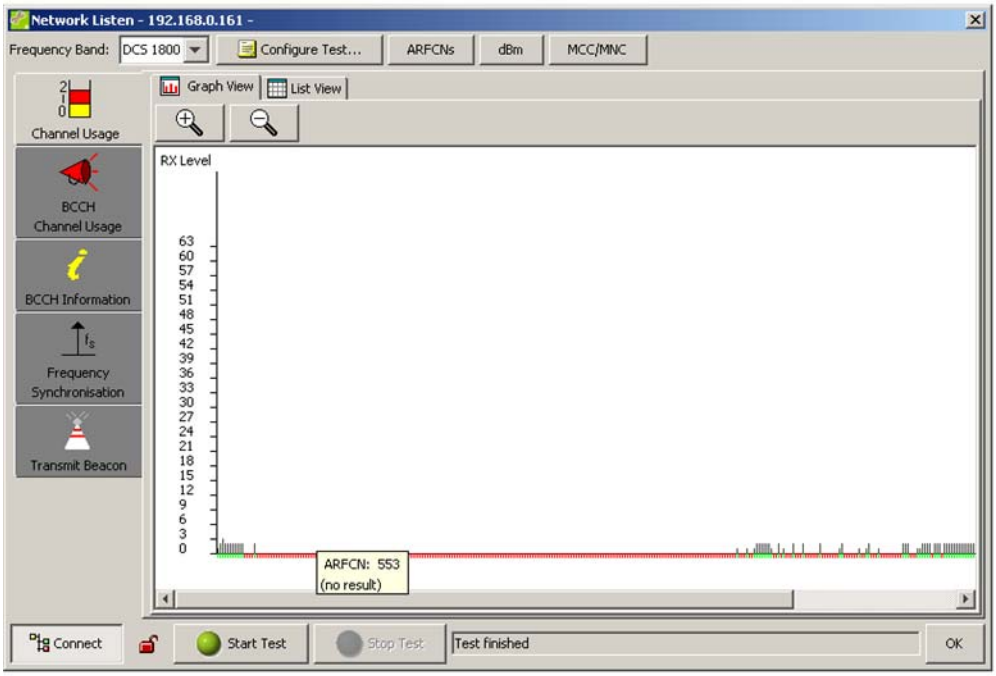
I. Select the BTS in the BTS Status window at the bottom. Then, select the Listen button towards the lower right of the window. The Network Listen window will open.



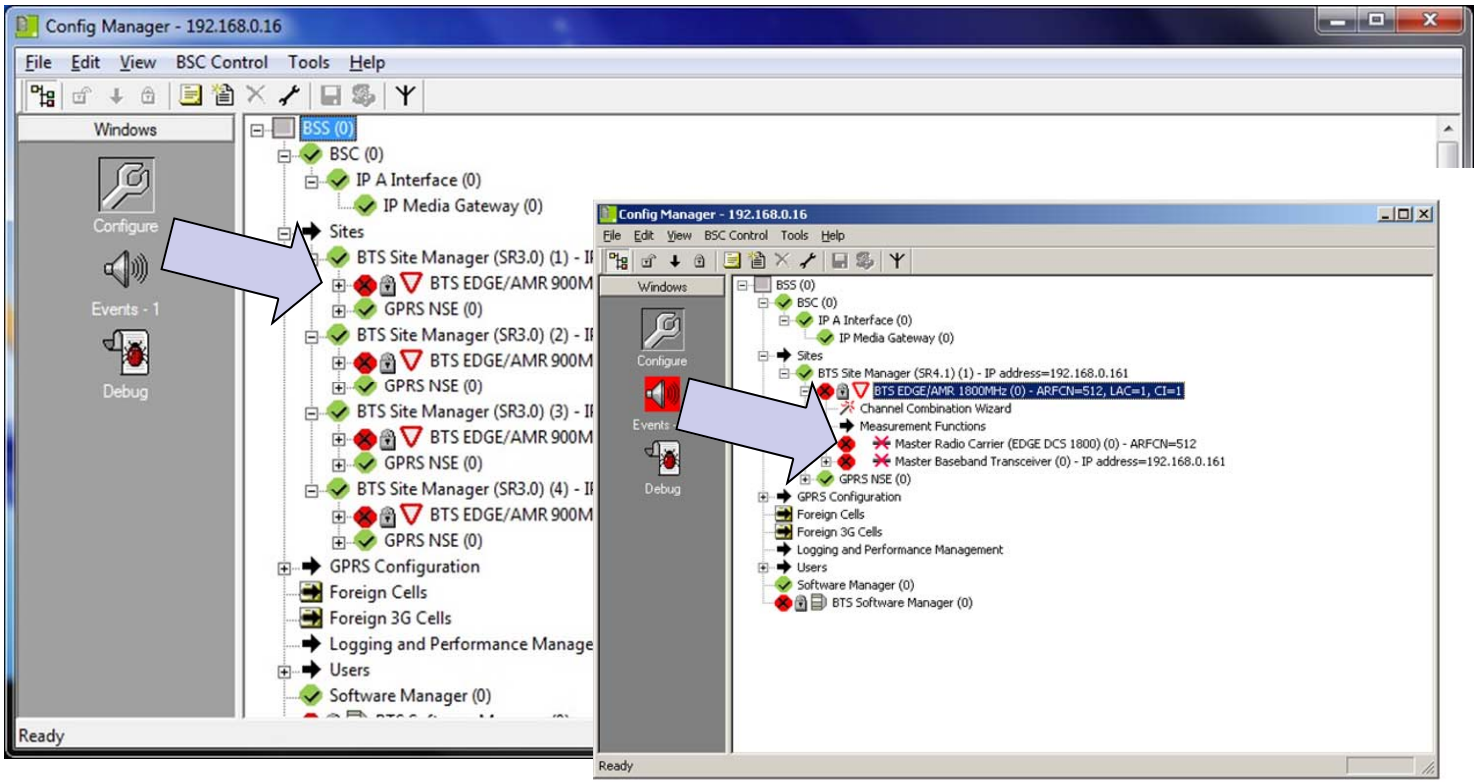
J. First select the correct frequency band (E-GSM900) at the top of the left window. Then, at the lower left of the window select connect. You will then be able to select the Start Test button at the bottom left of the window.



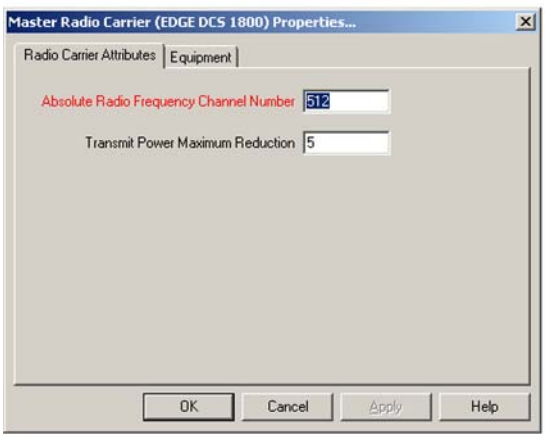
K. The results of the test will then be displayed. Move the cursor over an area that does not have any signal spikes. Note the ARFCN that it reads, as this will be the ARFCN that you will be using.



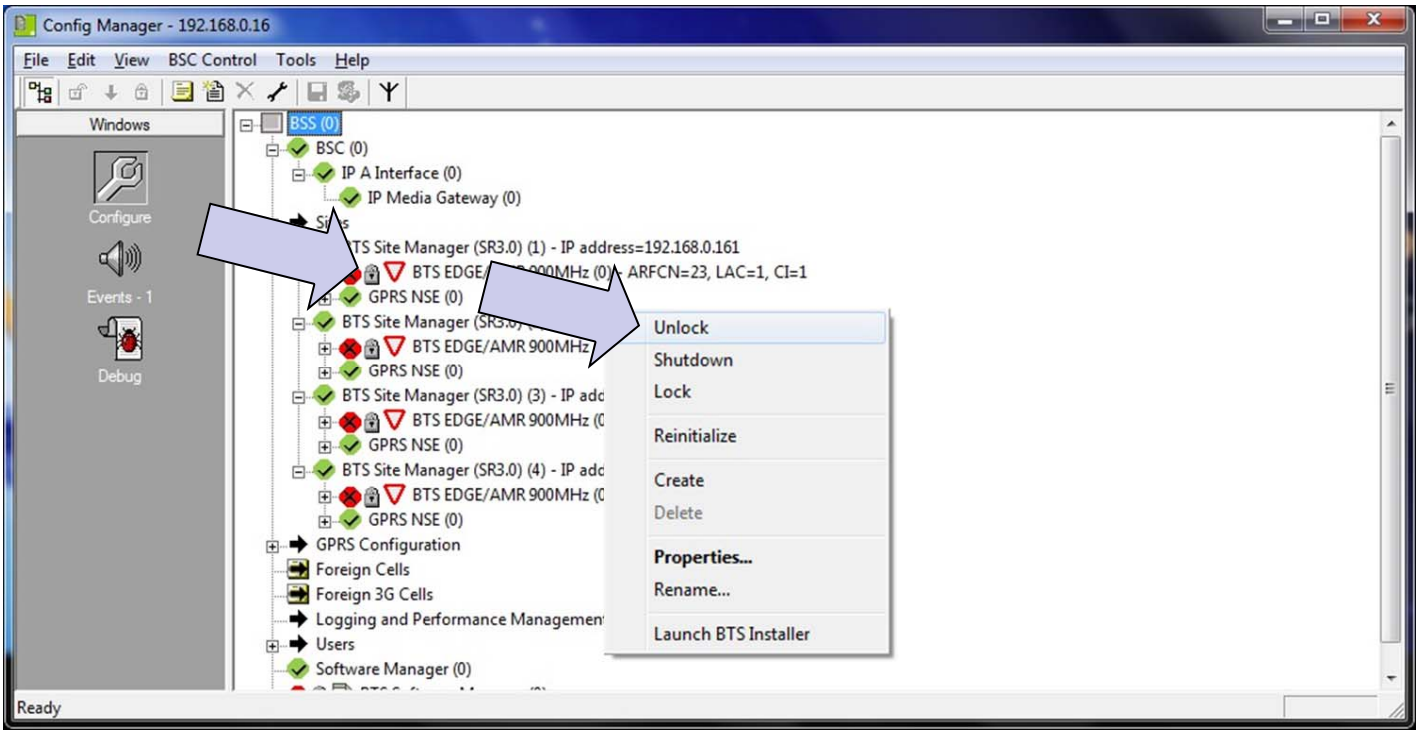
L. Close the Network Listen and BTS Installer windows and return to the Config Manager window. Expand the BTS field for the first site and double click the Master Radio Center field. A Master Radio Carrier Properties window will open.



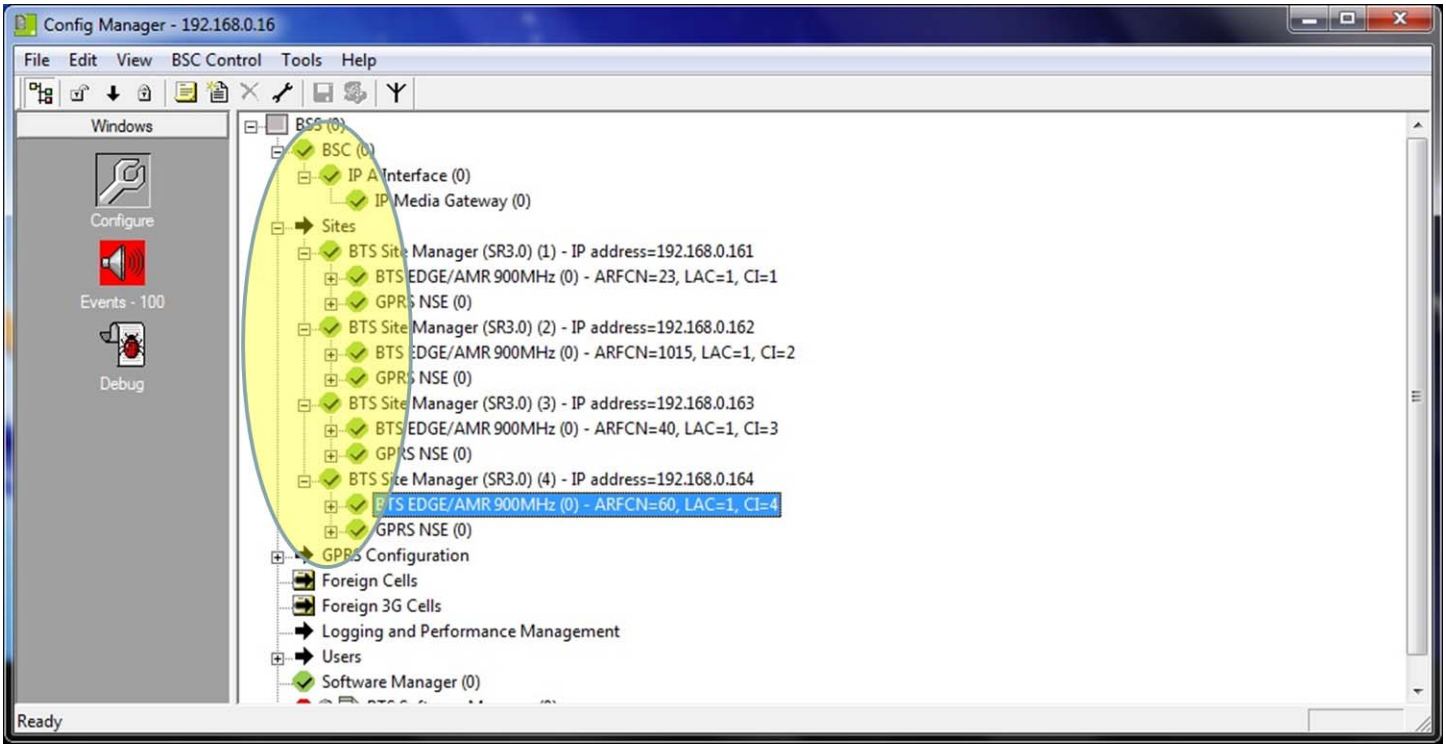
L. In Absolute Radio Frequency Channel Number field enter the new ARFCN noted in step K during the Network Listen Test. Select OK. You will now be using a frequency that should not be interfering with any other transmitters, and should not be receiving interference from any transmitters.



M. Right click on the lock for the BTS site and select unlock.



N. Repeat Steps H through M for each site. Upon completion, all sites will be active, and unlocked sites are transmitting. ARFCN's should be evenly spaced, at least 5 apart, and optimally 10 apart.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File Edit View BSC Control Tools Help
Windows
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BTS Site Manager (SR3.0) (3) - IP address=192.168.0.163
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GPRS NSE (0)
GPRS Configuration
Foreign Cells
Foreign 3G Cells
Logging and Performance Management
Users
Software Manager (0)
Ready

O. O. The handhelds can now be used to make calls on this cell network. To verify phone number, dial: *#100# on the handheld. For Wi-Fi access on handhelds and laptop, password: "PEAKpassword". Additional SIM cards are provided to install in non-PEAK phones, and will provide voice and text service only (no media capability for text messaging).

O. To properly shutdown the computer double-click on the Poweroff Shortcut icon on the desktop. To reboot the computer use Reboot Shortcut icon on the desktop.

P. Refer to the user manuals located in the "User Guide" folder for software and device-specific manuals and instructions.

LOCAL (LINKED OR INDEPENDENT) SITE TEARDOWN:

1. Laptop shutdown:
    a. Shut down laptop by double clicking “Poweroff Shortcut” icon found on the desktop.
    b. Remove dongle (291) and place back into pelican case (ensure safe keeping of dongle — if dongle is misplaced, laptop will not function).
    c. Detach power cord from base station and laptop, and place in pelican case.
    d. Detach Cat-5 cable from base station and laptop, and place in zippered pouch on front cover of base station.
    e. Place laptop back into pelican case.

2. BGAN shutdown:
    a. Hold power button to power off.
    b. Ensure power is completely off (screen will appear blank) before storing.
    c. Detach Cat-5 cable from base station and BGAN, and place in zippered pouch on front cover of base station.
    d. Detach power cord from base station and BGAN, and place under BGAN in pelican case.

3. Base station shutdown:
    a. Flip power button on back of base station to OFF position.
    b. Detach Cat-5 cables for Fortress, laptop and BGAN.
    c. Detach Antenna RF Out cable.

4. Disassemble Antenna Mast

5. Fortress Shutdown:
    a. After lowering mast, detach Cat-5 cable found on bottom of Fortress.
    b. Loosely roll cable ensuring no kinks.
    c. Unscrew Backhaul (Black) antenna and Wi-Fi (White) antenna from Fortress, place in pelican case.
    d. Unscrew wingnuts, bracket and bolts, and remove from mast pole.
    e. Store bracket, bolts and wingnuts separate from Fortress in pelican case.
    f. Place Fortress in case.
    g. Place Cat-5 cable on top of Fortress.

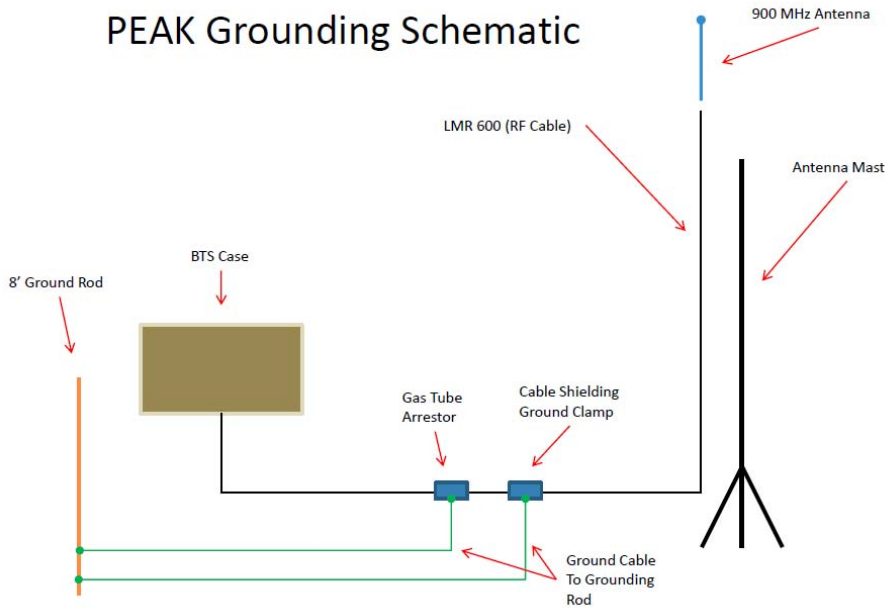
6. Omni-antenna
    a. Detach RF cable from antenna.
    b. Loosen clasps and remove grounding cables from grounding rod.
    c. Remove grounding rod from ground and disassemble sections.
    d. Roll cable loosely and ensure cable does not kink.
    e. Unbolt antenna from mast mounting pole.
    f. Replace wingnuts on bolts.
    g. Place antenna in bag with antenna mast.

LINKED- REMOTE SITE COMMUNICATIONS SETUP:

1. Open and unpack antenna mast bag. ***(see antenna setup instructions)***
2. Locate mounting top pole. (before setting up antenna) - it is half the length of the other mast poles.
3. Attach guy wire collar at second hole from bottom (castle-cut end) of mounting pole.
4. Attach Omni Antenna to the pole.
5. Attach cable to the Omni Antenna. Unroll and lay out flat. Ensure cable does not kink.
6. Attach Fortress below guy wire collar and secure with wingnuts, bracket, and bolts to mounting pole slightly below Omni Antenna (offset Fortress to ensure guy wire clearance).
6. Securely attach Backhaul (Black) antenna and Wi-Fi (White) antenna to Fortress. Black antenna to ANT 1 and White antenna to ANT 2 on Fortress.
7. Attach Cat-5 cable found in Fortress pelican kit to Fortress. Un-roll and lay out flat. Ensure cable does not kink.
8. Construct pop-up tent to weatherproof base station and Braille Battery.

NOTE: Ensure Base Station and Battery are placed under shelter. PEAK is fielded with combat tents for this purpose.

9. Follow Antenna Mast setup provided later in this user manual.
10. Grounding kit set-up
    a. Hammer 8-foot multi-section grounding rod into ground until 1 ½ foot remains exposed.
    b. Attach both grounding cables by loosening one end of each clasp, placing on the exposed section of grounding rod, and tightening the clasps.



NOTE: The grounding kit is used to ground the antenna's RF cable (LMR 600) that runs from the antenna to the Base Station. The LMR 600 has two conductors in it, the core and the shielding, and therefore requires two grounding cables. One cable grounds the core through a gas tube arrestor, and the other cable grounds the shielding through the cable shielding ground clamp. The BTS case is also grounded by the gas tube arrestor and grounding cable to the grounding rod.

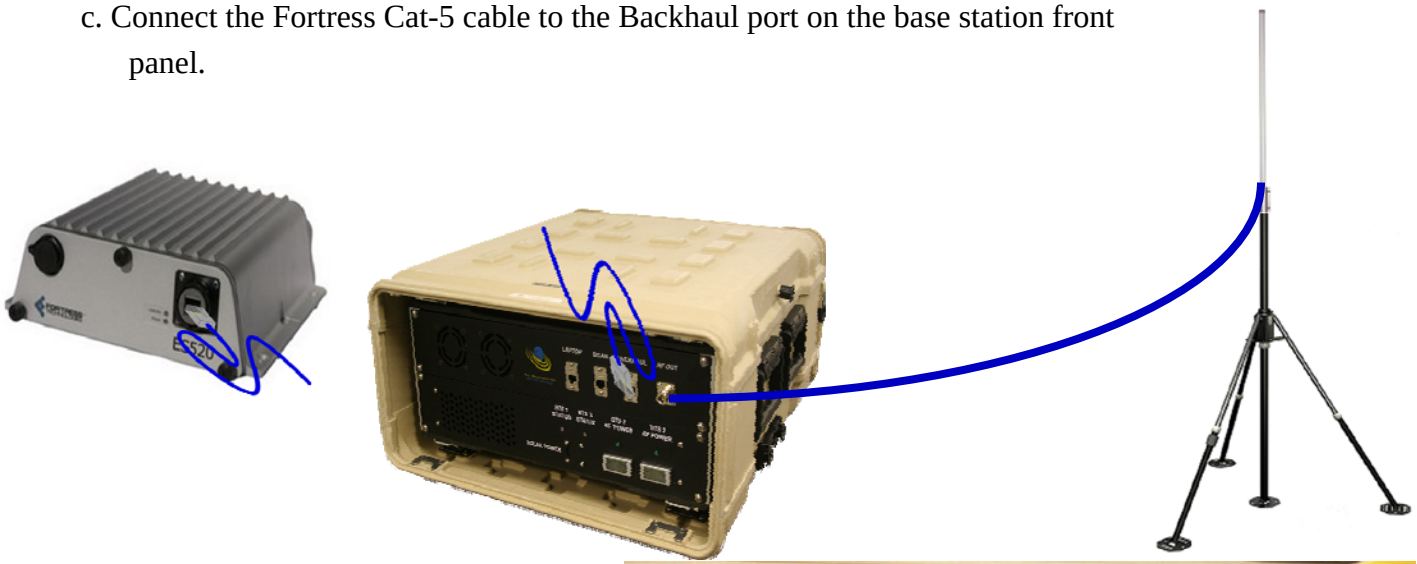
NOTE: Do not connect both laptops into system at same time. This will cause problems in your network.

9. Base Station Setup:

a. Base station should be placed in close proximity to antenna where antenna cable and Fortress Cat-5 cable can reach base station.

b. Remove front and back covers of base station case.

c. Connect the Fortress Cat-5 cable to the Backhaul port on the base station front panel.



d. Connect the Antenna RF cable to RF Out on the base station front panel.

e. Plug base station power cord into inverter on back of base station, and press the GFI reset.

f. Connect Braille Battery power

1. Power cord for Braille Battery can be found in zippered pouch on front cover of base station.

2. Attach power cord to base station labeled “SOLAR POWER”.

3. Attach opposite end to power socket on right side of Braille Battery.

4. To power on, press Power button found on top of battery pack. Once ON the blue illuminated ring will be ON.

g. Power base station ON with red switch (found on back of base station in upper right hand corner).

REMOTE SITE COMMUNICATIONS TEARDOWN:

1. Base station shutdown:
    a. Flip power button on back of base station to OFF position.
    b. Detach Cat-5 cables for Fortress Backhaul from Base Station front panel.
    c. Detach Antenna RF cable from RF Out on front of Base Station.

2. Braille Battery:
    a. Hold power button down for 3-4 seconds to power OFF.
    b. Blue ring will not be illuminated when battery is turned off.
    c. Detach power cord and store in zippered pouch on front cover of base station.

3. Disassemble Antenna Mast

4. Fortress Backhaul Shutdown:
    a. After lowering mast, detach Cat-5 cable from bottom of Fortress.
    b. Loosely roll cable ensuring no kinks.
    c. Unscrew Backhaul (black) antenna and Wi-Fi (white) antenna from Fortress, and place in pelican case.
    d. Unscrew wingnuts, bracket and bolts, and remove Fortress from mounting pole.
    e. Store wingnuts, bracket and bolts separately from Fortress in pelican case.
    f. Place Fortress in case.
    g. Place Cat-5 cable on top of Fortress.

5. Omni Antenna
    a. Detach RF cable from antenna.
    b. Loosen clasps and remove grounding cables from grounding rod.
    c. Remove grounding rod from ground and disassemble sections.
    d. Roll cable loosely and ensure cable does not kink.
    e. Unbolt antenna from mast mounting pole.
    f. Replace wingnuts on bolts.
    g. Place antenna in bag with antenna mast.

ANTENNA MAST SETUP

This section illustrates the steps in the antenna mast setup

WARNING:

All personnel setting up antenna mast must wear hard hat and gloves to avoid injury

1. Inspect the Site before Deployment

A. Ensure that the following conditions are met prior to deployment:
   I. There are no overhead wires or power lines.
   II. There are no buried power lines or unexploded ordinance.
   III. The ground is capable of holding tripod stakes if stakes are required.

2. Unpack the Wheeling Carry Bag

A. Remove the pole bag and stake bag and set them next to the wheeling carry bag.

3. Set up and Orient the Tripod

A. Remove the tripod from the wheeling bag and stand it up with the base plates on the ground.
B. Orient the tripod.
   I. Always orient the tripod with the serial number and compass of the tripod directly to your front and center. This will standardize deployment and assure the view of the mast corresponds to the step-by-step instructions in this manual.
   II. For "Directionally Based Applications", face the direction that you want the device you are deploying to face. Use the compass on the tripod for general orientation if you are unsure.
   III. For non-directional based applications, the tripod should be deployed with your back to the sun for maximum visibility and to avoid looking into the sun as the mast rises.
C. Release the Velcro strap on the tripod that holds the legs.
D. Unfold the tripod legs
E. Verify the cross bar on each of the 3 tripod legs is fully deployed by pushing down on it with at least two fingers until the sliding pin is resting completely at the bottom of the slot.

4. Raise the Tripod

A. Loosen the turn knob on each of the 3 telescoping legs and lift the tripod up so that all 3 legs fully extend. Make sure the legs are fully extended by lifting the tripod completely off the ground.
B. If a leg does not extend easily, check that the turn knob has been properly loosened and then pull on the leg until it extends fully. *(This may happen the 1st time a new mast is deployed and will abate with several uses.)*
C. Place the tripod back on the ground making sure all 3 base plates are flat and level.
D. Tighten the turn knobs on each of the 3 telescoping legs

5. Level the Tripod

A. Level the tripod by using the two bubble levels on the top of the tripod. The perpendicular positioning of 2 bubble levels assures easy, accurate leveling.
B. When the air bubbles in both levels are centered between the level marks at the middle of each bubble level, the tripod is level.
C. If both bubbles are not centered, adjust the telescoping legs using the turn knobs until the air bubbles in both levels are centered.
D. Fully tighten the turn knob on each leg.

Warning: **Improper leveling can result in excessive leaning when fully deployed, which can damage the system and cause serious bodily harm**

6. Secure the Tripod

A. Using the blue tripod stakes located in the black stake bag, drive a stake through each of the two holes on all three of the tripod base plates.
B. Make sure the black stainless steel head on the tripod stakes contact the top of the tripod base plates. Once the head has firmly contacted the tripod base plate, stop hammering, continued hammering may damage the tripod base plate.
C. If the ground is too hard to hammer the stakes deep enough for the head to contact the base plate, then drive the stakes into the ground at an angle towards the center of the tripod to maximize the surface area contact of the stake so that the tripod base plate is secure and cannot lift up.
D. When tripod stakes cannot be used such as on a roof top, on a paved or hard surface, or inside a building, then the tripod base plates should be secured by sandbags or other weights, preferably utilizing BlueSky's optional Telescoping Tripod Struts (Part # BSM2-K-T712-BSP-STR).
E. If securing the tripod using weights, then the higher the mast is raised the more weight will be needed at the base to counteract the payload at the top and keep the mast from tipping over.
F. Recheck bubble levels to make sure tripod is level.

7. Attach the Pole Bag to the Tripod Leg

A. Attach the pole bag to the tripod leg on your right using the Velcro strap on the tripod leg.
B. Fully open the top of the bag and fold it back to easily access the mast poles inside.

8. Insert the First Mast Pole

A. Grab a mast pole out of the pole bag and insert up through the compression collar on the bottom of the tripod until the silver insert of the mast pole is visible at least 5 inches above the top of the tripod.
B. If the mast pole does not insert easily into the tripod, loosen the compression collar on the tripod by turning it counterclockwise and try again.
C. Secure the mast pole by tightening the compression collar on the tripod by turning it clockwise.

Warning: Keep your feet clear below the tripod until the entire mast has been deployed and the base pole has been inserted. Slippage of the mast poles may occur if the compression collar is not secured properly, causing damage to objects located within the tripod area below the compression collar.

9. Add the Mounting Pole

A. The mounting pole is used for attaching devices to the top of the mast is located in the front side zippered pocket of the wheeling carry bag. It is 1/2 the length of a mast pole.
B. Locate the mounting pole and slide it over the silver insert of the first mast pole in the tripod.
C. Make sure the castle cut on both poles nest fully together and there is no silver visible in the seams of the joint.

10. Add the Primary Guy Ring

A. Locate the primary pin on guy ring and slide it over the top of the mounting pole.
B. Pin it into the last hole at the base of the mounting pole.
C. Pull on the stainless steel push pin to make sure it has engaged properly.

11. Attach devices to the Mast

A. Attach the omni-antenna and Fortress as described on page 6 of this manual.

B. Ensure guy-wires do not interfere with Fortress antennas, and ensure Omni Antenna is not tightened against the guy wire collar.

C. Hang RF cable sling on omni-antenna mounting bracket, and secure any loose cables to the mast.

WARNING: Use Velcro straps or some other form of cable management to secure instrument cables to the mast to reduce strain on cables and prevent damage to cable connections. Loose cables can also cause the mast to lean to one side and affect performance and safety

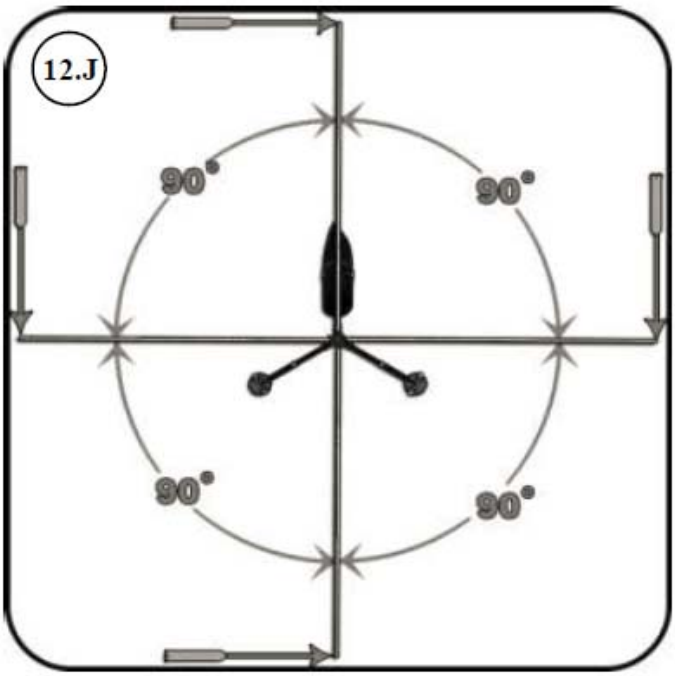
12. Attach the Primary Guy Ropes

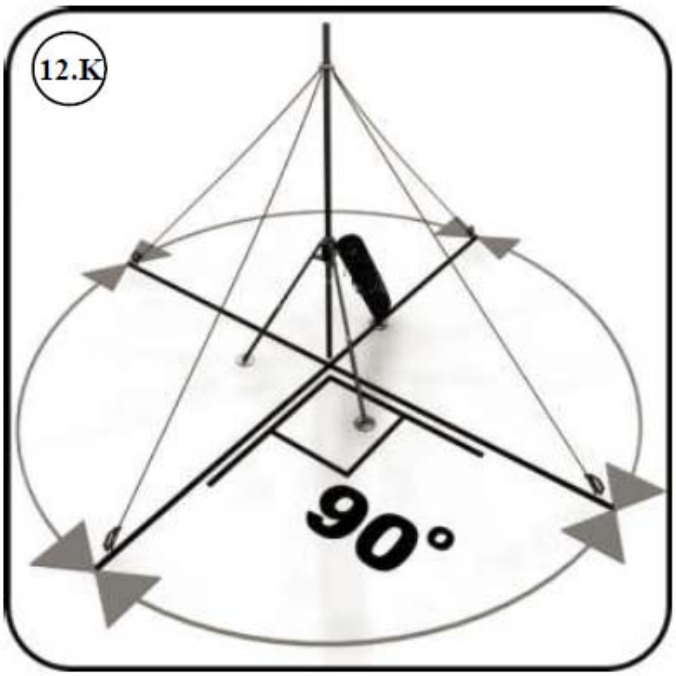
A. For this step you will need the four primary guy ropes in the back side pocket of the wheeling carry bag and the four galvanized steel guy stakes in the black stake bag.
B. Attach the stainless steel clip on the free end of the 1st primary guy rope to the round hole on the primary guy ring.
C. Unwind the 1st primary guy rope while walking away from the mast until you get to the red indicator mark on the primary guy rope or the length that you determined by using the guying reference chart in the addendum of this manual.
D. Drive a guy stake into the ground at the mark where the red indicator is on the guy rope or the length that you determined using the guy chart.
E. Standing in place above the guy stake, unwind the rest of the guy rope off the handle and then attach the stainless steel clip onto the guy stake.

Helpful Hint: *Walk the 1st guy rope in the opposite direction of the sun. This will help you align the 2nd guy rope (opposite of 1st guy rope) without interference of the sun.*

12. Attach the Primary Guy Ropes (continued)

F. Attach the stainless steel clip on the free end of the 2nd primary guy rope to the square hole opposite the round hole on the primary guy ring.
G. Unwind the 2nd primary guy rope (opposite of 1st primary guy rope) until you get to the red indicator mark on the primary guy rope or the length that you determined by using the guying reference chart.
H. Visually confirm that the 2nd primary guy rope is in line with the 1st primary guy rope directly opposite the tripod.
I. Drive a guy stake into the ground at the mark where the red indicator is on the guy rope or the length that you determined using the guy chart in the addendum.
J. Repeat the steps above until all four primary guy ropes have been properly deployed **90 Degrees** from each other.
K. When all guys have been deployed, inspect the spacing and orientation and make any adjustments now.

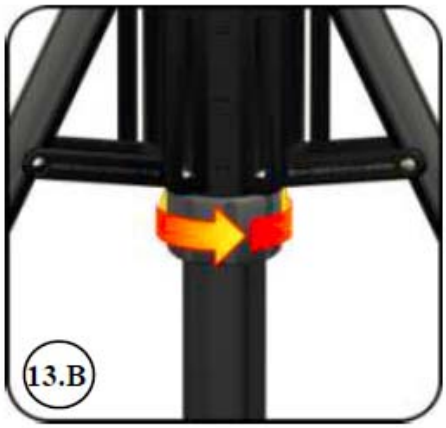




***Helpful Hint**: If you are deploying the mast to a shorter height than the purchased height or are in a tight spot where the guys can't be placed at the indicated mark, then see the guying addendum at the end of this manual for help in determining your spacing and load specs.*

13. Raise the First Mast Pole

A. Holding the first mast pole in the tripod, loosen the compression collar by turning it to the left and raise it till only 4 inches is visible below the tripod.
B. Secure the mast pole by tightening the compression collar on the tripod by turning it to the right.



14. Raise the Rest of the Mast Poles

A. Get another mast pole out of the pole bag insert the silver end into the bottom the mast pole already locked in the compression collar. Make sure that the castle cut on both poles nest firmly together and no silver is visible in the seams of the joint.
B. Holding the bottom mast pole firmly with one hand, slowly loosen the compression collar and allow the weight to settle onto the hand holding the just-added mast pole.
C. Using both hands, slide the mast pole up through the tripod until only until there is only about 4 inches of the bottom of the mast pole visible below the compression collar on the tripod.
D. Tighten the compression collar on the tripod and release the mast pole slowly to make sure that it does not slide down in the tripod. If it does begin to slide down, then the compression collar is not tight enough.
E. Repeat this process for the remaining mast poles or until desired height is reached.

Helpful Hint: *If you cannot tighten the compression collar enough to prevent the mast pole from sliding down, then you can rotate both the mast pole and the compression collar in the same direction at the same time. This will help create a more secure locked position. You can also apply this same technique to help loosen any mast pole if you cannot turn the compression collar by itself.*

WARNING: If you experience excessive leaning during the deployment due to heavier loads or high winds then be sure to use incremental guying as outlined in step 15.

15. Incremental Guying (if required)

May be required when less than two people are available to hold the primary guy ropes during deployment with heavy loads or high winds.

Heavy loads or windy conditions can exert extra force on the center mast poles during deployment causing them to bind in the tripod and create potentially unsafe conditions. Excessive leaning during deployment is an indicator that incremental guying is required. When these conditions exist, it will be necessary to incrementally guy the mast during deployment before reaching the desired height. Incremental guying will add time to the deployment but will ensure the safety of both personnel and equipment

A. Start with the guy rope that is opposite the direction that the mast may be leaning.
B. Pull on the knotted end of the rope stay until you have removed enough slack from the line to allow only the insertion of a single mast pole.
C. Tie a simple knot in the slack to prevent the line from pulling back through the hole on the rope stay.
D. Adjust the guy rope by sliding the rope stay towards the mast to tighten and away from the mast to loosen.
E. Adjust the remaining 3 guy ropes the same way to allow for only enough slack for a single mast pole to be inserted.
F. It is unnecessary to adjust the secondary guy ropes during incremental guying.
G. Continue raising the mast sections utilizing incremental guying until the full height has been achieved.

16. Insert the Base Pole

A. Get the base pole out of the pole bag and insert the silver end into the bottom the mast pole already locked in the compression collar. Holding the base pole firmly with one hand, slowly loosen the compression collar and allow the weight to settle onto the hand holding the base pole.
B. Permit the base bole to slowly slide down until the base plate on the bottom of the base pole firmly contacts the ground.

Helpful Hint: *Lift Handles are available as an optional accessory and can be used to more easily raise the mast poles.*

Lift Handles
BSM2-P-Y702-GRP-000
(Optional Accessory)

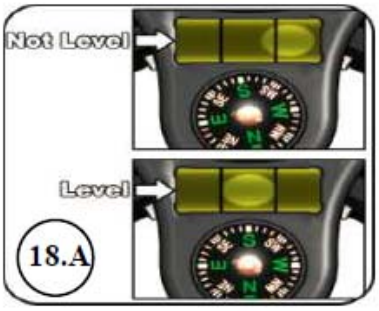
17. Adjust the Primary Guy Ropes

Adjust the guy ropes so that the mast is straight and perpendicular. If the guy ropes are too loose it will allow the mast to lean. If the guy ropes are too tight then they put un-necessary strain and load on the mast causing it to bend or bow. The tension should be firm, not slack nor taut.

A. Adjust the primary guy ropes so that the mast is straight and perpendicular starting with the guy rope that is opposite the direction that the mast may be leaning.
B. Adjust the primary guy rope by sliding the rope stay towards the mast to tighten and away from the mast to loosen.
C. Adjust the remaining 3 primary guy ropes the same way to allow till the mast is straight and perpendicular.
E. It may be necessary to do this several times till the mast is straight and perpendicular.
F. Rotate the mast to align any directional devices if necessary.

18. Level the Mast and Adjust the Base Pole

A. Make sure that the tripod is level and that the base plate on the base pole is centered below the mast.
B. Secure the base pole in the tripod by gripping the knurled section of the top of the tripod with one hand and while applying slightly downward force, use the other hand to tighten the compression collar to lock the mast in place.
C. Re-level the tripod by simply tapping or nudging the base pole with your foot in the correct direction until the bubble levels on the tripod read correctly.
D. Do not loosen the turn knobs to adjust the level while the mast is fully deployed.



19. Stake the Base Pole

A. Using the blue tripod stakes, drive a stake through two of the four holes on the base pole base plate.
B. Make sure the black stainless steel head of the tripod stake contacts the base plate. Once the Head has firmly contacted the base plate, stop hammering. (Continued hammering may damage the base plate.)
C. If the ground is too hard to hammer the stake deep enough for the head to contact the base plate, then drive the stake into the ground at an angle towards the center to maximize the surface area contact of the stake so that the base plate is secure.

20. Secure the Area—Finished

A. Secure any remaining cable to the mast.
B. Attach BlueSky Surface Wire Grounding Kit (Part # BST2-K-L104-GND-000) if so equipped. See addendum in Manual for instructions.
C. Stow any equipment and tools in the Wheeling Carry Bag to prevent loss.

Packing and Stowing the BlueSky Mast

1. Place Tripod in the Wheeling Carry Bag

A. Place tripod in the bag.
B. Rotate top leg so that base plate is vertical.
C. Slide tripod down to the bottom of the bag so that base plates touch the bottom.

2. Place the Small Items in the Wheeling Carry Bag

A. Put the mounting pole, primary guy ring and manual into the top inside Blue Zippered Pocket on the right.
B. Place the primary guy ropes in the back inside Green Zippered Pocket on the right.

3. Place Stake Bag in the Wheeling Carry Bag

A. Put the Stakes and Hammer in the small black stake bag.
B. Place the stake bag between the legs of the tripod with the drawstring at the top.

4. Place Pole Bag in the Wheeling Carry Bag

A. Put the poles and base pole in the pole bag.
B. Place the pole bag in the wheeling carry bag to the left of the tripod.

5. Secure the Wheeling Carry Bag

A. Use the two straps on the inside of the bag too secure the tripod, pole bag and stake bag.
B. Put any other ancillary devices in the bag at this time.
C. Do not overload the bag or damage may occur.
D. Zip up the main outside zipper and secure the 3 straps on the outside of the bag.